Homemade Slot Mortiser

by Paul Cates

When I owned a Rojek mortiser, it was my favorite power tool, so after I sold it I decided to try to build something similar but cheaper. For the up/down adjustment, I found the following hunk of iron at a local surplus dealer for $100. It was greasy and a bit rusty, so I spent some time cleaning, sanding and repainting.

I used the 40 (mm) series 8020 linear bearings because at the time of purchase, 8020's surplus site on eBay had both the rails and bearings in stock. The 40 series is plenty beefy, so I think the smaller sizes would work fine. The head of a 5⁄16" carriage bolt fits nicely into the rail slots to secure the rails to the cast table. 8020 also sells shims to make the bearings fit snugly to the rails. These are not mandatory if the bolt holes in the table are large enough to allow you to adjust the bearings to ride against the rails, but the shims are an easy way to remove slop while moving the X-Y table (vs. endless adjustments without them—DAMHIKT!).

I investigated using an induction motor with a chuck attached to either the motor's shaft or to a mandrel, but it seemed more trouble/expense that it was worth, thus I went the router route. I made the box holding the Bosch

1617 EVS router out of plywood, with a detachable top/back. I bought the variable speed router thinking I could use it at less than full speed to cut down on the noise. It works fine, but if I had to do it over, I'd probably use a more powerful router. I can imagine a piece of red oak stopping the Bosch with a ½" bit on low speed. Rick L. gave me lots of pointers and advice via email, and I copied some of the features of Dan Barber's Mortise-Flex. (click to see article)

The port for dust collection is on the back:

Side to side adjustments and hold downs:

To make the lever, I bought some rod ends on eBay but couldn't find a solid steel rod to fit through the rod end without a lot of slop. ½" was too big, so I used a ⅜" threaded rod on the inside of a hollow aluminum tube. There is a little flex in the lever, but it works fine.